Assessing Mobile Technologies in Child Protective Services

St. Lawrence County Department of Social Services District Profile

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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is an initiative to assess the use of mobile technologies in child protective services work in New York State. The project, a collaborative effort among the NYS Office of Children and Family Services (OCFS), 23 NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG), focused on two core questions – how is mobile technology used in the work setting and did the technology impact the work itself?

In this project, OCFS was responsible for the selection, procurement, and deployment of mobile technologies. The County DSS was also responsible for the deployment of mobile technologies, in addition to the coordination and procurement of wireless connectivity, training, and the selection of Child Protective Services (CPS) staff to participate in the demonstration. CTG was responsible for the independent assessment of the use of the technology.

The *Demonstration Project in 23 Local Social Service Districts* produced profiles for each of the participating districts as well as a summary report. It may be useful to read through the summary report before reading the local district profile as the summary report explains the variability in the CPS environment across the state as well as describes the many polices and practices developed and implemented by districts. The report is available at: http://www.ctg.albany.edu/publications/reports/demonstration2008.

This profile presents findings for the St. Lawrence County DSS. Findings are based on data collected through online surveys, district questionnaires, and analysis of CONNECTIONS data (data collection methodology and timeframe can be found in Appendix A). The field test lasted for 60 days from 11/10/07-1/9/08.

District Deployment

St. Lawrence County DSS has 17 CPS staff responsible for child protective services. St. Lawrence County is a rural area with approximately 111,000 residents. St. Lawrence County DSS particpated in the demonstration project to learn if mobile technologies provide caseworkers with increased opportunities and capability to enter case notes while in remote areas.

The St. Lawrence County DSS deployed 16 Dell Latitude D620 laptops to 16 caseworkers on 11/10/07 (see Appendix B for device specifications). All caseworkers received their own device and docking stations with keyboards and monitors. Training was done on an individual basis, as needed.

No broadband connection cards were procured for any devices during the pilot period. Therefore, the only wireless connectivity options were public wireless networks within the area and any home Internet Service Provider (ISP) access. Regardless of the network connections used, all access to the State network was through a virtual private network (VPN) that secures the transmission to and

from the portable device and the network. In addition, PointSec encryption software was installed on each device before deployment.

Two policies were instituted during the pilot period as a result of the introduction of mobile technologies into the workplace. First, caseworkers were required to secure the device when it was out of the possession of a caseworker (for example, it was suggested caseworkers lock the laptop in the trunk of car), and second, caseworkers were prohibited from using CONNECTIONS in non-secure 'free wireless' spots. The second policy came about because the data could not be protected. In both periods, with prior approval, caseworkers are allowed to receive compensatory time for working at home after regular work hours.

Characteristics of Respondents

A total of 16 CPS caseworkers participated in this study: 12 took the baseline survey (response rate 75%); 9 took the post-pilot survey (response rate 56%); and 7 took both the baseline and post-pilot surveys (response rate 44%).

The length of experience in CPS work, amount of overtime accrued weekly, the number of court days and estimated court waiting time are all important to understanding the overall context of the work environment. The St. Lawrence County DSS respondents[1] were new to CPS field work, with an average of 2.8 years of experience; 75% reported CPS experience of three years or less. Respondents worked about the same number of overtime hours in the pre-pilot and pilot period. The percentage of respondents reporting overtime of five hours or less in a week slightly decreased from 86% in the pre-pilot period to 83% in the pilot period. However, the average overtime hours slightly decreased from four hours in the pre-pilot period to 3.8 hours in the pilot period. Sixty-seven percent of respondents reported a typical court waiting time of three hours or less and 92% reported spending four or fewer days in court per month.

Mobility

The laptops provided caseworkers opportunities to work outside the office environment in new ways. This section reports on how the participants used those opportunities in terms of the type of work done, locations, and issues that influence use. Survey questions inquired about use at home, in court houses, and in the field. Issue questions focused on using the laptop outside of the office, such as: (1) difficulty establishing connection, (2) loss of connection, (3) the speed of connection, (4) level of privacy (or personal work space and ability to ensure confidentiality of information), (5) personal safety, and (6) amount of time available to use the laptop. How information was accessed and entered by participants was also examined.

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[1] Participant(s) refers to those CPS caseworkers who tested the technology. Respondent(s) refers to the total number of participants who answered specific questions in either the baseline or post-pilot surveys or participated in the district teleconferences.

Use

St. Lawrence County DSS respondents reported using the laptop during normal work hours, after work hours, on-call, and when working overtime. St. Lawrence County DSS desktops were removed and docking stations installed. Therefore, the full range of CPS-related work was completed using the laptops. The laptop was used in case investigation and interventions, documentation, and reporting. Case documentation was the most frequent use, including inputting and updating notes, dictation, completing safety assessments, reading and reviewing case histories, opening new cases, doing person searches, checking client histories, and email. Eight respondents reported using the laptop to access various forms of information from government Web sites while in the field at least once a day. Similarly, eight respondents accessed email at least once a day or more, while two respondents reported using their laptop at least once a day or more to access map directions.

The extent to which caseworkers can access information while out of the office has a big influence on what kinds of mobile work are possible. Very few St. Lawrence County DSS participants responded to the questions regarding changes in accessing information. However, for those that did, laptop use did not change (at this point in time) the frequency of respondents returing to the office to access information. Three reported returning to the office to access information four or more times a week in the pre- and pilot periods.

Several respondents commented on some of the often overlooked changes in mobility and communication patterns. For example, one respondent stated, "Instead of having to travel back to the office to do dictation and other work, I can just pull over or go to any spot that has internet access to do my work. This cuts down on my travel time, giving me more time to get things done." Another said, "I sometimes stop at people's homes if they are on my way to work. After a visit, I type my dictation from that visit into my laptop. I also sometimes use the laptop to retrieve info from CONNECTIONS."

St. Lawrence County DSS did not have district-provided external broadband cards during the pilot period. While out of the office, respondents reported using 'hot spots' and while at home, most used their personal Internet Service Providers (ISPs). The court house does not currently have wireless access. Several respondents noted that the area does not have a reliable wireless carrier and this makes accessing 'hot spots' very difficult. Those who were able to connect in different locations reported some obstacles to mobile use, including the inability to establish a connection in all locations. One participant expressed, "Internet access is spotty in our county and at home. It takes time to log-on and off and to access client records in CONNECTIONS." Small blocks of time or privacy issues were not seen as major problems at the court house, or while in the field or at home.

Participants were also asked about ease of logging-on to the device. Overall, 75% said it was "Easy" to "Extremely Easy, " 25% rated it as "Neither difficult nor Easy," and none of the respondents rated the log-on process as "Difficult" or "Extremely Difficult."

Location

Table 1 below details the percentage of respondents using the laptop at different locations, as well as the average length of time the laptop was used. Six respondents reported using the laptop at

home, for an average of over three hours per week, six people used it in the field for over 9.5 hours a week, and four used the laptop in court for on average less than one hour per week.

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	**Average length of use per week**
Field	67% (6)	9.57 Hours
Court	44% (4)	0.83 Hours
Home	67% (6)	3.43 Hours
Do not use at all	0% (0)	--

* Based on survey respondents who took the post survey n=9. Total number of testers n=16.

In the survey open-ended comments participants stated the importance of having the laptop with them in the field to type or dictate notes. One respondent stated, "I can type notes into my laptop at home or in the field, making it take less time to type the notes because the information is fresh." However, a few did not find the adjustment in work practices as easy. Another stated, "Because my work habits have not changed since using it, I am not comfortable using my laptop in the field and am unsure of how to use it, therefore I just don't."

The amount of time caseworkers spend in court suggests that is an unexploited location for mobile work in most districts. St. Lawrence County DSS respondents spend on average of 2.5 days a month at court and wait approximately 2.5 hours during a court visit. However, caseworkers may not be using the laptop in the court house or the field because of other competing interests that may limit the amount and type of work they can do. The number of opportunities to use the laptop may be limited for some due to changes in work practices and not having connectivity.

Caseworkers could work from home for overtime reasons and receive compensatory time if they received prior approval. No problems were reported with overtime approvals during the pilot period. Several respondents stated that working from home was now more efficient because it increased their flexibility. One stated, "[The laptop] allows me to access CONNECTIONS at home so I may complete a case and submit to my supervisor."
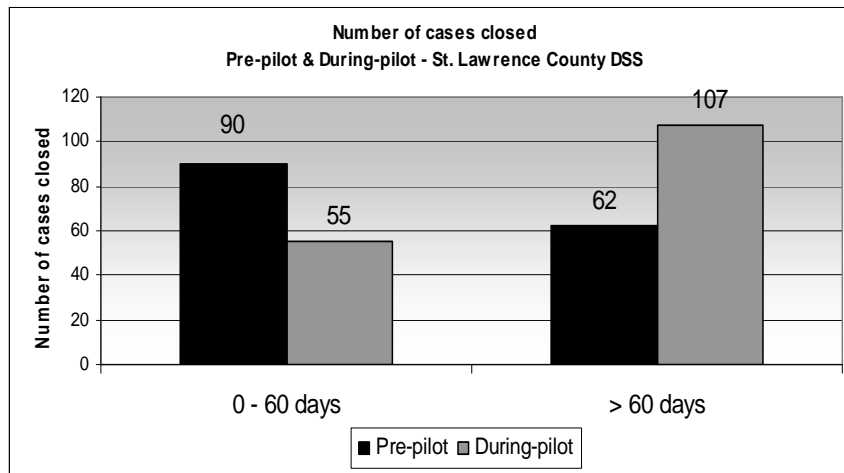
Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the St. Lawrence County DSS: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess any changes in efficiency and productivity. Figure 1 below shows the rate of timely closing of cases (in 60 days or less) decreased from the pre-test period (90) to the test period (55). However, the number of cases closed in over 60 days increased substantially from 62 in the pre-pilot period to 107 in the pilot period. This is a moderate increase in productivity during the pilot period; the total number of cases closed increased from 152 in the pre-pilot period to 162 during the pilot – a 6.6% increase. It is important to note that in this county the total number
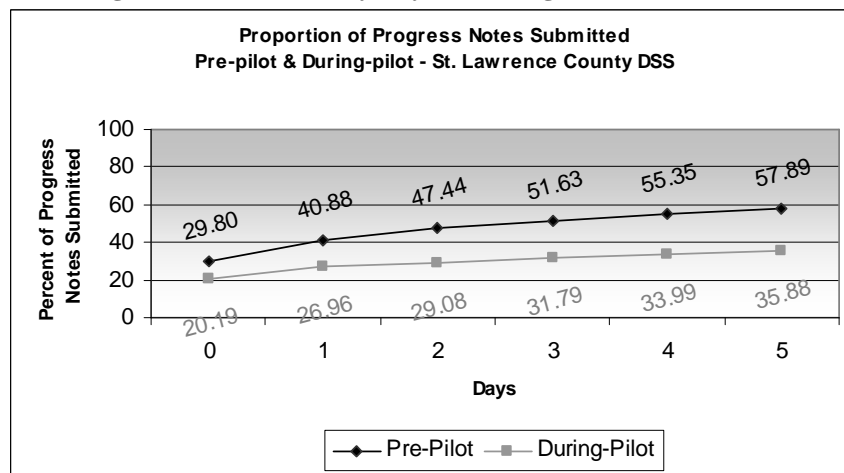
of cases available to be worked on[2] decreased from 369 in the pre-pilot period to 288 in the pilot period – a 22% decrease.

Figure 1 - Number of St. Lawrence County DSS Cases Closed Pre-Pilot and During Pilot

Number of cases closed
Pre-pilot & During-pilot - St. Lawrence County DSS

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120
              90                              107
100
 80                              62
 60                  55
 40
 20
  0
         0 - 60 days                  > 60 days

        ■ Pre-pilot  ■ During-pilot
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Y-axis: Number of cases closed

Another indicator of timeliness is elapsed time – or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During the pre-pilot period, the majority of all progress notes were entered by the fifth day following the event, but only 35% during the pilot period. Contrary to expectations, the proportion of progress notes entered in each time period during the test is consistently below that of the pre-pilot period. By this measure, timeliness decreased slightly during the test.

Figure 2 - Proportion of Progress Notes Entered by Days Following Event

Proportion of Progress Notes Submitted
Pre-pilot & During-pilot - St. Lawrence County DSS

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100
 80            40.88   47.44   51.63   55.35   57.89
 60     29.80
 40
 20     20.19   26.96   29.08   31.79   33.99   35.88
  0
         0      1       2       3       4       5
                         Days

        ─◆─ Pre-Pilot   ─■─ During-Pilot
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Y-axis: Percent of Progress Notes Submitted

There may be multiple reasons for this decrease in the timeliness of note entry. The overall increase in closing cases over 60 days during the test may have changed the usual pattern of progress note entry. The use of new technology also requires a period of adjustment. In St. Lawrence County DSS, a total of 16 laptop with docking stations were deployed. This kind of equipment change can

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[2] The number of cases available to be worked on is the total of investigation stages that were open at any time during each of the pre-or pilot periods.

require extra effort in the short run and require a period of adjustment. In addition, no wireless access cards were deployed with the laptops, due to the absence of a reliable wireless network access provider in the county. A few respondents reported slow sign-on processes and difficulties in maintaining a connection away from the office or slow response while connected. One respondent did remark, "The laptop takes a long time to start up each time it is used, whether at the office or in the field." Another reported difficulty saving documents. It is not clear, however, how common these problems were.

Some additional adjustments to these deployment and work processes may be necessary to take full advantage of the laptops for use in the field. Adjusting to these issues can be part of the learning process in adapting to the new technologies.

Participants were asked to what extent using a laptop made a difference in CPS work compared to not having the laptop. Five different areas were examined: (1) timeliness of documentation, (2) ability to do work in court, (3) ability to access case information, (4) communication with supervisors, and (5) service to clients. Respondents were asked to rate the difference on a five-point scale where 1 = "Much worse," 3 = "About the same," and 5 = "Much better."

The St. Lawrence County DSS respondents reported some positive impacts on their work resulting from laptop use, shown in Table 2 below. For documentation, six of the eight respondents reported improvements in timeliness of documentation and four respondents reported improved ability to access case information. Reported ability to work in court improved for three respondents and two each reported improvements in ability to communicate with supervisors and provide service to clients. The only reported negative impact was one respondent's report of a negative impact on ability to work in court.

**Table 2 - Perceived Change Timeliness and Work Impacts – St. Lawrence County**

	Much worse (n)	Somewhat worse (n)	About the same (n)	Somewhat better (n)	Much better (n)
Timeliness of documentation	0%(0)	0%(0)	25%(2)	25%(2)	50%(4)
Ability to do work in court	0%(0)	13%(1)	50%(4)	25%(2)	13%(1)
Ability to access case information	0%(0)	0%(0)	50%(4)	25%(2)	25%(2)
Communication with supervisors	0%(0)	0%(0)	75%(6)	13%(1)	13%(1)
Service to clients	0%(0)	0%(0)	75%(6)	13%(1)	13%(1)

This lack of reported negative impacts on timeliness and other work activities is somewhat inconsistent with the timeliness of documentation results obtained from the central database. It is possible that the reduction in timeliness seen in progress note entry was too small to be noticed by the caseworkers and overshadowed by the increase in the rate of case closings.

Satisfaction

The overall level of satisfaction with the laptops was moderate. Figure 3 below shows that 63% of all respondents expressed being "Somewhat satisfied" or "Very satisfied," compared to 13% being "Very dissatisfied." Additionally, one-quarter of respondents indicated that they were "Neither dissatisfied/Satisfied."

Figure 3 - Overall User Satisfaction with the Laptops

Overall Satisfaction with Laptop/Tablet PC, St. Lawrence County DSS
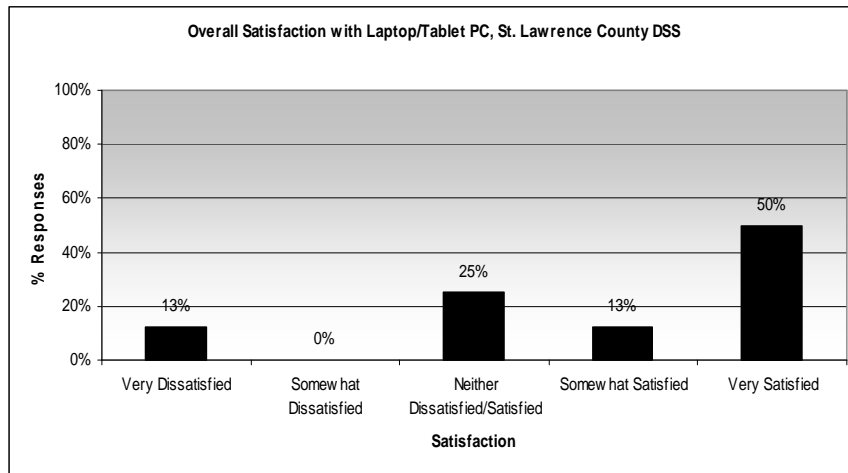
* Based on survey respondents who took the post survey n =9. Total number of testers n = 16.

Positive recommendations were attributed to the value of the laptop to CPS work. Positive comments included the following: "Every caseworker working with families either in CPS or foster care/preventive services should have access to a laptop. It has helped me be more efficient," and "CPS work depends on a high level of flexibility and adapting. The laptop allows me to be more flexible and stay on top of tasks."

Mixed recommendations or negative perceptions were attributed to caseworkers' unfamiliarity with the laptops' capabilities and functionality as well as the lengthy boot-up times and the lack of a district-provided external broadband card. It could also be the case that having a laptop produced higher expectations for use at court and in the field, expectations that were not wholly met.

The role of the laptop in reducing job-related stress received mix results from respondents. Fifty percent indicated that it did reduce stress, while the other half felt as though laptops did not contribute to lower job-related stress. Those who reported a reduction in stress attributed it to their ability to catch up on their work, just knowing the laptop is available, and having the flexibility of working on documentation outside of the office. One caseworker said, "I have not had an overdue investigation since having the laptop. I can do my dictation in the field. I have cut down on time wasted in court and in the field. I can work at home if needed." Those who did not see the laptop as reducing stress indicated, "Just having the laptop does not stop the cases from piling up and does not help with getting documentation completed if you have too many cases to begin with."

Overall, 88% of respondents would recommend the use of laptops to colleagues. The reasons mentioned for positive recommendations included increased flexibility in ability to do work and

ability to use time more efficiently. One caseworker pointed out, "CPS work depends on a high level of flexibility and adapting. The laptop allows me to be more flexible and stay on top of tasks."

APPENDIX A – Methodology, Data Collection, and Timeline

There were three streams of data collection throughout the project. Two online surveys, as well as data from the central OCFS CONNECTIONS database, provided quantitative data to assess various productivity, satisfaction, and timeliness measures. In addition, the different uses and locations of use were documented. This data was supplemented by qualitative data gathered from ten district teleconferences. Each method is described in greater detail below.

Online Surveys

Two separate surveys, a baseline and post-pilot survey, were administered. The surveys collected data about respondents' perceptions and attitudes using the laptop or tablet PC within several areas of CPS work – work practice, work time, demographic information, mobility/location, skill and stress levels, technology acceptance, training, and use of technology. The surveys were developed over a period of a several months and a pre-survey was tested. The surveys were modified based on the pilot survey results and the project team's knowledge and understanding of CPS work. The online surveys were developed and administered through commercial software (Survey Monkey).

The names, email addresses, and titles of participating CPS caseworkers were collected from each of the participating County DSS. Personalized survey invitations were emailed to participants. The baseline survey was administered prior the deployment of laptops or tablet PCs to participating caseworkers. The baseline survey was open for three weeks starting on 9/21/07 and ending on 10/5/07.

The post-pilot survey was administered three months following the deployment of laptops. The survey was open for one week; starting on 1/3/08 and ending on 1/10/08. Data was collected from three new thematic categories: the impact of laptops on caseworkers' daily activities, mobility-related issues, and technical difficulties experienced during the pilot. Data quality checks were performed and the data was recoded as needed.

Teleconferences

During the week of December 10 – 14, 2007, CTG held separate teleconferences with project participants in 10 County DSS in NYS to learn more about how they were using the laptops and tablets deployed for CPS work. Participating County DSS were chosen by CTG and the NYS OCFS liaisons. Criteria for choosing the districts included (1) how long they had the technologies in use, and (2) districts that provided a full range of geographical representation across the state, in terms of rural and urban settings and overall size.

Each district participated in one teleconference with CTG interviewers. All participants were given sample questions before the teleconferences that dealt with deployment, connectivity, use and location, changes in work, issues/concerns, policy implications, and overall benefits of laptop use. The following table shows the districts interviewed and the number of participants in each call.

Table 3 – Teleconference time and participant information

County DSS	Date of Teleconference Interview	# of Caseworkers	#of Supervisors	Other(s) Participating
Albany	12/10/07	6	0	LAN Administrator
Chemung	12/1107	6	1	-
Clinton	12/10/07	7	1	-
Nassau	12/13/07	13	0	Assistant Director
Niagara	12/10/07	2	2	Staff Development Coordinator; IT Representative
Onondaga	12/11/07	8	0	IT Representative
Orleans	12/11/07	3	0	LAN Administrator
Putnam	12/13/07	3	1	-
Ulster	12/15/07	4	3	-
Washington	12/12/07	4	0	-

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using data from the central database. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers' progress notes. The information contained within each of these records included: Stage ID, Person ID, time-related information about the *investigation stage* (Intake Start Date, Investigation Stage Start Date, Investigation Stage End Date); *progress notes information* (Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, Progress Notes Purposes); *safety assessments* (Safety Submit Date, Safety Approval Date) logged by caseworkers in each County DSS. The CONNECTIONS data was pulled by the date a progress note was entered by participants during two timeframes, the pre- and during-pilot phases (09/10/07 – 11/09/07 and 11/10/07 – 01/09/08 respectively). A total of 7,152 progress note entries and 440 unique investigation stages made up the dataset from 16 caseworkers.

Appendix B – Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS.

Laptop

Latitude D620, Intel Core 2 Duo T5500, 1.66GHz, 667Mhz, 2ML2 Cache, Dual Core, 14.1 inch Wide Screen WXGA LCD for Latitude D620, 1.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, Intel Integrated Graphics Media Accelerator 950 Latitude D620, 60GB Hard Drive 9.5MM, 5400RPMfor Dell Latitude DX20, Standard Touchpad for LatitudeD620, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Professional, SP2 with media, for Latitude English, Factory Installed, Dell Black USB 2 Button Optical Mouse with Scroll for Latitude.

Tablet

HP Compaq tc4400 Tablet PC 26 EN376AV Product - HP Compaq tc4400 Tablet PC, Operating system - Genuine Windows® Vista Business, VISTA label - Microsoft® Vista Ready Label, Form Ultramobile form factor, Intel® Core™2 Duo Processor T5600, (1.83GHz, 2MB cache, 667MHz FSB), Intel® Centrino® Duo Label, 1024MB (667MHz, DDRII memory, 1 DIMM), 80GB Hard drive (5400 rpm), 12.1-inch TFT XGA WVA Display with Fingerprint Reader, 56K Modem, 10/100/1000 NIC, 6-cell high capacity Lithium Ion internal battery, Digital Eraser Pen with tether and clip, Keyboard with Enhanced Dual Pointing, Intel® Pro Wireless 3945ABG, security - Embedded TPM 1.2 security chip, and three year worldwide limited warranty.

Appendix C – The Center for Technology in Government (CTG)

The Center for Technology in Government (CTG) is an applied research center committed to improving government and public services through policy, management, and technology innovation. Through its program of partnership, research, and innovation, the Center provides government organizations and individuals with an array of tools and resources designed to support the development of a digital government. The goal of every CTG partnership project is to build knowledge that improves the way government works. CTG projects have helped state, local, and federal agencies increase productivity and coordination, reduce costs, enhance quality, and deliver better services to citizens and businesses. The results generated by each project add to a growing knowledge base designed to support the work of both government professionals and academic researchers. CTG receives funding through the University at Albany's state allocation, as well through grants and awards from foundations and federal agencies such as the National Science Foundation.

Since its creation in 1993, the Center has:

- conducted almost 50 partnership projects, which produced outcomes that have helped state, local, and federal government agencies improve services and operations;
- collaborated with nearly 100 government agencies, 42 private companies, and 14 academic institutions and research organizations;
- issued over 100 guides, reports, and online resources designed to support the work of government professionals, and over 300 scholarly articles that have contributed to the field of research on IT innovation in government organizations;
- developed and evaluated 12 prototype systems that answered critical policy, management, organizational, and technology questions;
- obtained 37 research grants and fee-for-service contracts for over $10 million;
- been honored with 16 state and national awards such as the Ford Foundation's Innovations in American Government award;
- given over 250 trainings, workshops, and conference presentations provided data; and
- support to more than 20 doctoral dissertations and masters projects.

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